S. HRG. 99-352

NOMINATION OF DONALD ALDEN HICKS TO BE UNDER SECRETARY OF DEFENSE FOR RESEARCH AND ENGINEERING

HEARING

BEFORE THE

COMMITTEE ON ARMED SERVICES UNITED STATES SENATE

NINETY-NINTH CONGRESS

FIRST SESSION

ON

NOMINATION OF

DONALD ALDEN HICKS TO BE UNDER SECRETARY OF DEFENSE FOR RESEARCH AND ENGINEERING

JULY 25, 1985

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NOMINATION OF DONALD ALDEN HICKS TO BE UNDER SECRETARY OF DEFENSE FOR RESEARCH AND ENGINEERING

THURSDAY, JULY 25, 1985

U.S. SENATE,
COMMITTEE ON ARMED SERVICES,
Washington, DC.

The committee met in open session pursuant to notice, at 9:01 a.m., in room SR-222, Russell Senate Office Building, Senator Barry Goldwater (chairman) presiding.

Present: Senators Goldwater, Thurmond, Wilson, Levin, and Bingaman.

Staff present: James F. McGovern, staff director and chief counsel; Arnold L. Punaro, staff director for the minority; Alan R. Yuspeh, general counsel; Jeffrey H. Smith, minority counsel; Christine C. Dauth, chief clerk; and Patrick A. Tucker, counsel; Robert F. Bott, John J. Hamre, William E. Hoehn, Jr., George K. Johnson, Jr., Ronald P. Kelly, David S. Lyles, and Russel E. Milnes, professional staff members; Marie Chaillet, staff assistant.

Also present: Romie L. Brownlee, assistant to Senator Warner; Henry D. Sokolski, assistant to Senator Quayle; Mark J. Albrecht, assistant to Senator Wilson; Allan W. Cameron, assistant to Senator Denton; Jeffrey B. Subko, assistant to Senator Exon; and Edward McGaffigan, Jr., assistant to Senator Bingaman.

OPENING STATEMENT BY SENATOR BARRY GOLDWATER, CHAIRMAN

Chairman GOLDWATER. The meeting will come to order.

The committee meets this morning to consider the nomination of Dr. Donald A. Hicks to be Under Secretary of Defense for Research and Engineering. The position which Dr. Hicks has been nominated to fill is the No. 3 position in the Department of Defense and is one of critical importance.

Dr. Hicks is eminently qualified to serve in this important post. He served most recently as senior vice president for marketing and technology at the Northrop Corp. with which he has been affiliated since 1961.

Prior to this he was a physicist with the Lawrence Radiation Laboratory and the California Research and Development Corp.

Dr. Hicks holds bachelor, master, and doctorate degrees from the University of California at Berkeley. He received an award for outstanding achievement in engineering management from the University of Southern California.

I should note for the record of this hearing that Dr. Hicks has met with the staff of the committee to review his personal financial holdings and there will be no conflict between Dr. Hicks' financial holdings and his responsibilities as Under Secretary of the Department of Defense.

At this time I should recognize Senator Nunn for any comments he would like to make after which Senator Wilson would introduce Dr. Hicks, but Senator Nunn has not yet appeared.

Doctor, we have been in conference for about 10 or 12 days and getting anybody up here at 9 a.m. is a pretty hard job. They will be here, don't worry.

I should like to make as part of the record the nomination reference and personal background of Dr. Hicks.

[The nomination reference and biographical sketch of Dr. Hicks follows:]

NOMINATION REFERENCE

AS IN EXECUTIVE SESSION, SENATE OF THE UNITED STATES, JUNE 25, 1985

Ordered, that the following nomination be referred to the Committee on Armed Services:

Donald Alden Hicks, of California, to be Under Secretary of Defense for Research and Engineering, vice Richard D. DeLauer, resigned.

BIOGRAPHICAL SKETCH OF DONALD A. HICKS

President Reagan announced his intention to nominate Donald Alden Hicks to be Under Secretary of Defense for Research and Engineering on June 24, 1985.

Dr. Hicks has been senior vice president, marketing and technology for Northrop Corp., a Los Angeles based aerospace firm which operates primarily in the fields of aircraft, communications and electronics, and technical and management services.

Dr. Hicks was the focal point at Northrop's corporate office for coordination of the company's technical and marketing activities. He also had responsibility for the company's domestic field offices in Washington, DC; Dayton, OH; Shalimar, FL; and Omaha, NE.

Dr. Hicks joined Northrop in 1961 as vice president-technical for the company's Ventura division. Four years later he formed the applied research department of the then-Nortronics Division of Northrop. In 1967, this department became a major segment of the newly formed Northrop Research and Technology Center with Dr. Hicks serving as vice president and manager.

In 1970, Dr. Hicks was promoted to corporate vice president of research and technology, a position he held until his appointment as senior vice president-technology in November in 1974. This position was expanded in 1979 to include corporate marketing.

Prior to joining Northrop, Dr. Hicks was associated with the Boeing Co.'s aerospace group where he headed the applied physics section. From 1954 to 1956 he was a physicist with the Lawrence Radiation Laboratory where he conducted basic research related to various aspects of fission physics. From 1950 to 1954 he was a physicist with the Lawrence Radiation Laboratory where he conducted research on high-energy nuclear particle cross sections utilized in the design of the material testing accelerator target.

Dr. Hicks is a member of the Defense Science Board; member of the European-American Workshop; member of Board of Councilors of the School of Engineering, University of Southern California; member of the Board of Directors of John Tracy Clinic; member of the College of Engineering Advisory Board of the University of California, Berkeley; member of the Board of Directors, Mercantile National Bank; and a member of the Board of Directors, Science Applications International Corporation.

A resident of Beverly Hills, CA for the past decade, Dr Hicks is a member of the California Club, the Regency Club, and (Washington, DC) the Georgetown Club.

Recently, Dr. Hicks received the 1985 Award for Outstanding Achievement in Engineering Management from the University of Southern California. He holds AB, MA, and PhD degrees in physics from the University of California at Berkeley.

Chairman GOLDWATER. I shall now recognize Senator Wilson.

STATEMENT OF SENATOR PETE WILSON, A U.S. SENATOR FROM THE STATE OF CALIFORNIA

Senator WILSON. Good morning, Mr. Chairman.

You have adequately informed yourself as to the background of the nominee, and it is an outstanding one. Rather than take more of your time I would simply make a conclusion.

The gentleman who is before us this morning for our recommendation that the Senate confirm him, is culminating 35 years of his own personal professional development in science, engineering, and business and brings to this critically important post, I think, all of the talent and skills that it requires.

He has been involved as a research physicist at Lawrence-Livermore National Laboratory. He has been involved as an engineer and as a management leader for both Boeing and Northrop.

As you pointed out, in addition to the three degrees he holds from the University of California, his career has been capped by recognition as the outstanding engineering management award recipient from the University of Southern California.

I think all that is really left for me, is that at the appropriate time, to move that the committee recommend his confirmation which I do with great enthusiasm. I think he is an outstanding candidate.

Chairman GOLDWATER. Thank you very much, Senator.

Dr. Hicks, you are free to tell us anything you want.

STATEMENT OF DONALD ALDEN HICKS, NOMINEE FOR UNDER SECRETARY OF DEFENSE FOR RESEARCH AND ENGINEERING

Dr. HICKS. Thank you, Senator Goldwater.

Thank you, Senator Wilson, for your great introduction. I appreciate that very much.

I went into the Army during World War II when I was 18 years old. Since that time, except for 10 years at the University of California at Berkeley, I have really spent most of my life, one way or the other, with defense. As a result of that, of course, I established a good working relationship through the years with the Defense Department. I particularly came to respect the importance of the Director of Defense Research and Engineering and was always impressed with the quality and capability of the individuals who held that post.

I have to say I was lucky enough to have known each of them through the 25 years since the post was established. So, I am aware of the task ahead of me.

I feel honored that Secretary Weinberger and the President have selected me as the nominee. I am very happy to be here today and to let you appraise my worth for that job.

Thank you.

Chairman GOLDWATER. Senator Bingaman, do you have any questions?

Senator BINGAMAN. I want to commend Dr. Hicks for his willingness to take this important position.

I did want to ask about one subject which comes under your auspices as much as anywhere.

The Packard report, not the one he is now working on, but the one that he did that affected national labs, made recommendations about trying to upgrade pay for scientists in our national laboratories in particular, and that is a recommendation which we are considering possibly proposing legislation on.

I would be interested in your thoughts as to the appropriateness of that recommendation and what needs to be done by Congress and the administration to ensure that we can retain and attract the people we need with the scientific backgrounds we need to the Federal Government.

Dr. HICKS. Senator, the answer I give you has to be without the knowledge I might gain in my new position but as a result of my being aware of the Packard report.

My own belief, as I view the situation from what is still an industrial position, is that if we are going to attract proper people in Government laboratories, then their compensation has to be comparable to those that you find in industry.

I think it is also important, though, that along with that and in the spirit of the free enterprise system, that in order to receive that kind of salary, they have to be competitive in terms of their worth.

So, if we just decide to establish higher salaries without any indication that we are now going to be competitive in the selection of personnel it might not be counterproductive, but probably of little help. It will attract some additional people, but if people are allowed to stay who aren't qualified in those jobs with higher pay, it won't do what the Packard commission wanted to have done, which is to improve the quality of the laboratories.

Senator BINGAMAN. I want to ask one more question, Mr. Chairman.

Another initiative that we are pursuing this year and the Defense Department has been supporting, as I understand it, is a major effort to provide funds through the Department of Defense to improve instrumentation in the universities, university laboratories, and support basic research in that way.

What thoughts, if any, would you have on the appropriateness of the Department of Defense being an active player in filling that need?

Dr. HICKS. While I am generally in favor of this activity, I am sure I can find situations where I might not approve. I am not particularly interested in seeing Department money going to someplace where an individual is outspoken in his rejection of the Department aims.

But, basically, I believe it is in the interest of the Department to promote basic research because that is the well from which we will obtain our new and future systems.

I have been on the advisory councils of the schools of engineering of both the University of California at Berkeley and the University of Southern California and believe that industry and Government must support educational institutions.

Senator BINGAMAN. That is all I have, Mr. Chairman. Thank you very much.

Chairman GOLDWATER. Thank you.

Senator Thurmond?

Senator THURMOND. Thank you, Mr. Chairman, I would like to associate myself with your remarks and add my welcome to Dr. Hicks.

Dr. HICKS. Thank you, sir.

Senator THURMOND. I don't know of anyone who appears to be better qualified to fill this important position than Dr. Hicks. He has a bachelor's degree, a master's degree, and a doctor's degree and vast experience. I feel he will be a good addition to our Defense Department.

Dr. Hicks, it is a pleasure to welcome you here today and I look forward to working with you in the future.

Dr. HICKS. Thank you.

Senator THURMOND. Your position in the Department of Defense is very important because our technological lead over our adversaries is an advantage and makes up for some of the differences in our numerical inferiority.

This committee has been concerned for some time about the lack of commonality and interoperability of various programs that we develop. Our concerns were highlighted in the aftermath of the rescue mission in Grenada when we learned our forces lacked the ability to communicate effectively and quickly among the services.

In a larger conflict this could have been disastrous. I hope you will make commonality and interoperability a high priority in your office.

I wish you well in your work and any way we can cooperate, it will be a pleasure to do so.

Dr. HICKS. Thank you, Senator. I certainly agree with you. I have been involved in a number of Defense Science Board studies through the years on those same subjects. I just recently participated on the oversight of the C^3 effort going on among the services which is dedicated to getting their communicators to work together.

So, you can be certain I will give that proper attention.

Senator THURMOND. I see you have a good man sitting beside you there.

Chairman GOLDWATER. He is going to work for him. [Laughter.]

Doctor, I have one question.

Do you believe that there are any major management problems which need to be addressed with regard to laboratories at the Department of Defense?

Dr. HICKS. Senator Goldwater, I think it is a little early for me to answer that. I certainly would be very willing to come back at a later date after I have a chance to look into those things and then give you a report. I believe I would be giving you an answer without having the proper expertise at this point.

Chairman GOLDWATER. Just for the record, although I think we have it, what is your doctor's degree in?

Dr. HICKS. It is in nuclear physics. But I have done little of that for a long time.

Chairman GOLDWATER. Did you ever know Dr. Alvarez?

Dr. HICKS. Yes, he was one of my professors. He taught me physical optics using radar as an approach. I was quite confused for

about 3 months, but it all came together and I understood radar much better than I ever thought I would.

Chairman GOLDWATER. One of the most interesting men I have ever known in my life. One of the few academicians who is willing to sit down and talk with those of us who have a hard time getting 2 and 2 to come out to 4. I think the most profitable day I ever spent in my life was listening to the doctor and his son discuss nemesis theory. I have had a great deal of enjoyment watching the development of that.

We have nobody else here. So, I don't imagine that anybody is too concerned about your lack of ability. The only problem that seems to be of concern is your having too much ability to get along with those people over there across the river. [Laughter.]

Without objection, we will consider you confirmed and the staff will poll the committee by this evening and make it official.

Thank you for coming and, Senator Wilson, for the introduction.

I note Senator Levin has just arrived. It is good to have you with us, Senator Levin. We have Dr. Hicks here. We have been waiting for you. We know you will have the questions that none of us is prepared to ask.

Senator LEVIN. I can't figure out whether that is good or bad.

I have no problem with the nomination at all. I would vote to confirm. I do have some questions of Dr. Hicks. I appreciate, Mr. Chairman, your giving me this opportunity, belatedly as it may be.

It relates, Dr. Hicks, to the relationship between your office and SDI. I am wondering if you can tell me what that relationship is?

Dr. HICKS. Maybe I can read a portion of the memo that came out yesterday, Senator Levin. It states, basically, the fact that I have technical oversight responsibility over all DOD activities.

That includes milestone zero, DSARC I, DSARC II, anything that starts to go into a major production including a major concept, or formulation of a system, I will chair the committees on that, approve it before it goes forward, and recommend approval to the Secretary.

Senator LEVIN. Dr. Hicks, as you know, the administration is committed to full compliance with the ABM Treaty. According to the unclassified document which has been provided to me by the National Security Council as the administration position on the relationship between SDI and the ABM Treaty, it says that "We intend to adhere strictly to the ABM Treaty limitations."

Dr. HICKS. Yes, sir.

Senator LEVIN. That would be your obligation also?

Dr. HICKS. Of course. In fact, I spend a fair amount of time with General Abrahamson going over that issue and I think I understand it quite well. I can assure you, Senator, that we are to be in compliance.

Senator LEVIN. It is not just the conclusion we are going to need from you, but we are going to need your expertise as to how these particular tests that we are going to be funding are consistent with the ABM Treaty's requirement that there be no testing or development of ABM systems or components.

I have a lot of technical questions, Mr. Chairman, which I would like to have answered for the record. This will not be the place here orally. They are very technical questions that relate to defini-

tions of components, subcomponents, prototype, breadboard models, field tests that will be under Dr. Hicks' jurisdiction and as to whether what we are doing is consistent with our commitment to the National Security Council's mandate to comply with the ABM Treaty.

I would like to ask those for the record.

Chairman GOLDWATER. There is no objection to that.

Senator LEVIN. The general commitment that you will exercise your independent judgment to be certain that you are satisfied that what we are doing constitutes full compliance with the mandate of ABM that we not develop or test ABM systems or components, we will be relying on that very heavily and on other members of the administration to carry out that obligation as well.

Dr. HICKS. Senator, I promise you personally I will do that.

Senator LEVIN. The other questions are technical and I will submit them for the record.

I appreciate this opportunity to meet with Dr. Hicks.

Chairman GOLDWATER. Thank you very much, Dr. Levin.

Senator LEVIN. Thank you, Dr. Goldwater—Professor Goldwater?

Chairman GOLDWATER. That is better.

We are very happy with your appointment, Dr. Hicks. You are going to fill a very, very important post. The longer you serve in it, the more you are going to find what you want to do and probably the more you are going to find that you are not going to be able to do.

When you run into those little problems, I wish you would let us know. We are doing our best over here to leave here feeling a little better about the Department of Defense. It is a big job and you can be a big help.

Dr. Hicks. I appreciate that. I think there could be no doubt in the minds of any Americans about your contributions in that regard.

Chairman GOLDWATER. If that is all, the meeting will stand adjourned.

[The questions submitted by the members of the Senate Armed Services Committee to be answered for the record follow:]

QUESTION SUBMITTED BY SENATOR DAN QUAYLE

WEAPONS GUIDANCE ACCURACY "CZAR"

Senator QUAYLE. The Defense Science Board has recommended twice in the last 4 years that DoD establish a weapons' guidance accuracy "Czar" to promote the development and deployment of higher accuracy guidance sets. Do you agree with the DSB's concern that higher weapons' accuracies have not been developed and deployed as quickly as possible?

Dr. HICKS. Two points are in order. First, the reference to weapons' guidance accuracy "Czar" may be an overstatement of one of the DSB recommendations. The 1983 Defense Science Board Summer Study Panel which addressed Conventional Munitions and the Nuclear Threshold did recommend that the charter for the Office of Munitions (one of the functional areas in the Office of the Under Secretary of Defense for Research and Engineering) be ". . . expanded to include consideration for guidance, control, propulsion, airframe, and other components of munitions systems, and to address stockpile objectives and status." The formal documentation for this particular DSB did not cast this recommendation into a weapons' guidance accuracy "Czar" format.

Second, there is general agreement that the Department is not proceeding at the fastest pace possible to develop and deploy higher accuracy weapons given the avail-

able technology. The Department can do a better job in aiding the effective transition of guidance technology into fielded capability. One of the by-products of an ongoing DSB Summer Study on Armor/Anti-Armor Competition is the fact that the Department is not taking full advantage of the test and evaluation of promising concepts. The developer and the user must develop a common appreciation for the operational potential of new guidance control mechanisms. While the Department admits that more should be done in aiding the effective transition of guidance technology, there are a number of initiatives which are underway to accelerate the pace of the development and deployment of higher accuracy guidance weapons.

Questions Submitted by Senator Sam Nunn

R&D LINE-ITEMS

Senator Nunn. Dr. Hicks, would you agree that there are too many individual line-items in the RDT&E packages sent to Congress? (There are nearly 1,000 line items.) From our perspective, I think this leads us to micro-management and to enormous frustration on our part over our inability to understand how we can support key technologies and cut back on lower-priority activities. Will you pledge to take a good look at whether or not we can simplify the presentation and reduce the number of line-items, and thus hopefully reduce congressional tendencies to deal individually with each line?

Dr. Hicks. Assuming that all appropriate committees of Congress agree, I will be pleased to take a good look at whether or not the number of line-items (program elements) in the RDT&E packages sent to the Congress should be reduced. We say this because, historically speaking, the fiscal year 1973 budget to Congress transmitted a lesser number of program elements than in prior years in order to reduce the number. Subsequently, Senate and House committee reports discussed concern about the consolidation of RDT&E program elements and the resulting lack of visibility and difficulty in tracking program content. The reports recommended the reestablishment of certain program elements previously eliminated and the addition of other elements to attain the visibility required. The net affect resulted in a larger number of RDT&E progarm elements than prior to consolidation.

TWO-YEAR BUDGET

Senator Nunn. Dr. Hicks, the Senate Armed Services Committee has proposed to go to a 2-year authorization cycle for our authorizations. Do you favor a 2-year budget approach and will this keep in long-term R&D efforts?

Dr. Hicks. As you know, Secretary Weinberger has stated publicly that he supports a 2-year budget cycle. One reason for his support of this concept is the belief that biennial budgeting will lead to greater program stability. I share the Secretary's views. We would support a budgeting concept that affords us greater stability consistent with adequate flexibility in the planning and execution of our R&D efforts. This will undoubtedly be a primary concern as the Department explores the implications of a 2-year budget in response to the direction provided in the fiscal year 1986 DOD Authorization Bill.

CONVENTIONAL DEFENSE CAPABILITIES

Senator Nunn. Dr. Hicks, what do you see as the four or five most important programs under your purview that will contribute to the improvement of our conventional defense capabilities?

Dr. Hicks. The most important programs under the purview of the USDRE are those which allow the limited force structure to simultaneously improve both lethality and survivability. Specifically, this includes the emerging capability for standoff attack of the enemy forces. This capability will be achieved through JSTARS, PLSS, ASARS surveillance programs, as well as JTACMS, smart munitions and MLRS lethality programs. We fully expect these systems to make major improvements in our capability to deter the Soviets from waging conventional warfare against us or our allies to the point that we will reduce our dependence on tactical nuclear weapons. There are other important stand-off precision munitions that must be moved into development and then production.

NATO Cooperation

Senator Nunn. Dr. Hicks, are you familiar with the recently-enacted Nunn-Roth and Quayle provisions of the Senate bill, relating to cooperation in R&D with our

allies? The Nunn-Roth amendment fences $200M in RDT&E funds which may only be used for joint development activities with our NATO allies, and the Quayle amendment amends the Arms Export Control Act and title 10 to make cooperation with our allies easier.

Do you favor these provisions, and what importance do you attach to cooperative R&D projects with our NATO allies?

Given the "not-invented-here" factor and service reluctance towards cooperation, how do you plan to make more cooperation happen?

Dr. HICKS. I am familiar with the Nunn-Roth and the Quayle amendments and strongly support both. These provisions are needed and useful tools. They will help us work more effectively with our allies to achieve improvements in NATO's conventional capabilities that are essential. As far as R&D cooperation with our Alliance partners is concerned, I am in favor of it when and wherever it makes sense from both a defense and economic perspective. Cooperation should not be considered an end in itself. The first and the principle purpose of arms cooperation is defense. Affordability is another consideration. "Structural Disarmament" is a clear and present danger which we must thwart by rationalizing arms production in NATO to ensure that the resources available for defense are used efficiently and effectively. The MLRS-terminal guided warhead development program is an excellent model of R&D cooperation that makes both military and economic sense. Our three European partners are paying 20 percent each or 60 percent of the total costs; the United States is paying 40 percent. Each nation is making important technological contributions to the program and reaping the benefits of sharing. We all are participating in the project management as true partners. Such projects promote, indeed require, harmonized military requirements; they are cost effective and mutually beneficial. I intend to promote R&D cooperation along these lines, and the Nunn-Roth and Quayle amendments will be a big help.

The "not-invented-here" (NIH) problem is a long recognized factor in arms cooperation—one that is by no means limited to the United States. It simply must be acknowledged and dealt with on a case-by-case basis. My own view is that the best approach is to start early in the life cycle of the project and convince the Service and the project manager that a program stands a better chance of survival, of funding, if someone else is helping to pay for it. Resources are always going to be constrained. In the case of MLRS TGW just mentioned, the ability to buy program dollars at a 60 percent discount can be a powerful incentive. That's one side of the coin. The other is that we, both DoD and the Congress, must work to ensure that the disincentives for cooperation do not outnumber the incentives. Right now, in many senses, the prospect of international cooperation is just another headache the average service project manager could do without. As you know, I was a member of the Defense Science Board Task Force on International Industry-to-Industry Armaments Cooperation. One of our recommendations was that DoD work more closely with the Congress on major cooperative programs. I intend to follow this recommendation as a means of expanding the number and survivability of the cooperative programs we have with our Allies that improve conventional defense forces. In addition, the Dod Steering Group for NATO Armaments Cooperation, chaired by the Deputy Secreatry of Defense, is reviewing current U.S. impediments (administrative legislative, etc.) to arms cooperation in NATO with a view toward eliminating or reducing them. I plan to take a very active role in working toward eliminating unnecessary or costly roadblocks to meaningful cooperation.

ARMAMENTS DIRECTORS

Senator NUNN. Dr. Hicks, as Under Secretary you will be the U.S. representative on the CNAD (Conference of National Armaments Directors). The CNAD has played a modest role to date in enhancing cooperation among the allies, and a less-than-modest role in ET, or the application of emerging technology to improved NATO conventional defenses. How do you plan to use the CNAD to improve defense cooperation in R&D and on Emerging Technology items?

Dr. HICKS. I agree with the assessment that CNAD has made at best a very modest contribution to NATO conventional defense improvements. However, I believe there is an opportunity right now to change that situation. At present, there is an important study underway in NATO on the enhancement of armaments cooperation between the Allies. The CNAD will review that study in the fall and it will be presented to ministers later in the year. The fact that the study was agreed to at all indicates to me that there is at least a tacit recognition that NATO must do better in the area of arms cooperation. We plan to make a major contribution to this study and to push for needed reforms in the way CNAD does business. One particular

area we are looking at is greater use of the "two-or-more" rule. While fully recognizing that NATO is an alliance of consensus, cooperation under CNAD auspices is possible whenever at least two nations agree to participate. We intend to vigorously encourage the use of this rule for projects that make defense and economic sense. This should permit projects to go forward more quickly. I also plan for my office to take a much more active role in reviewing in advance positions taken by Service representatives on various key issues in CNAD subordinate bodies. Given that such bodies currently number about 255, this will be a major initiative, but one I hope will bring greater consistency to our policies and our actions.

There is another opportunity that should be utilized in stimulating on a broad front meaningful cooperation in NATO. The recently activated NATO Standardization Group (AC/315) is charged with developing a NATO standardization program. This group reports directly to the North Atlantic Council and could be very influential in strengthening cooperation by helping to define areas in which standardization is crucial to NATO's conventional deterrent, those in which interoperability is sufficient and so forth. We plan to take a leading role in focusing the activities of this group during its formative stage so that Alliance standardization and interoperability objectives are properly targeted on things that make a real difference in NATO combat capabilities.

JOINT PROGRAMS

Senator NUNN. Dr. Hicks, for at least the past 3 years, many of us in the Congress have impatiently been waiting for improved conventional capabilities like JTACMS, JSTARS and Joint Tactical Fusion to become available. Yet we have seen little beyond name calling, program restructuring, revised service requirements and priorities, and delay in getting on with the job. Can you assure us that these areas will receive your very high priority attention, starting tomorrow, and that you will push for early fielding of these improved capabilities?

Dr. HICKS. I appreciate your concern that key improved conventional programs like JTACMS, JSTARS and the Joint Tactical Fusion Program (JTFP) need to be fielded as soon as possible and I want to assure you that these programs have my highest priority. We are at the point of signing full scale development contracts on both JSTARS and JTACMS and I am certain we will be on contract this fall or early winter. The Department has made substantial progress in these programs, but that progress has not been very visible outside the Department because it has been in the form of consolidating Service integration before getting on contract. In the case of JTACMS, the Army has made the program one of its highest priority programs to which the Department added over a billion dollars across the FYDP. Folding the program into a coherent operational solution as part of the multiple launcher rocket system (MLRS) caused the slowdown from the original program but it is now on a fast track.

JSTARS, too, has become one of the highest priority programs in the Department as attested to by the large number of appeal letters from the Department when the HASC zeroed the program in their authorization mark in the fiscal year 86 budget. We anticipate getting on contract for full scale development by the end of fiscal 1986 and we are attempting to get an initial fielding prior to the end of the decade. The JTFP program is underway and it should be the earliest of the three systems to be fielded.

Integrating joint requirements into a joint solution is a time consuming process but we have gotten better. The cost savings afforded by appropriate cross Service programs is the only way to achieve affordable solutions and it is also a good method by which to achieve operational integration. The difficulty has been getting the operational communities and the acquisition communities of the respective Services into synchronization. We have made a lot of progress recently and I think we will see this process work better still in the future.

Senator NUNN. Do you intend to press for more joint programs and commonality among the services given the rather poor past performance in this area?

Dr. HICKS. Generally speaking, joint programs should increase in number because of increasing requirements and demands for more joint warfighting, a need to preclude redundant acquisition efforts, and new technology does not respect traditional service boundaries. The Department has historically favored joint programs, but only when they make sense. We have implemented recommendations from our most recent major study of joint programs (the Defense Science Board/Study for "Joint Service Acquisition Programs," August 1983) to improve the joint acquisition process. I intend to continue to press for more joint programs and commonality among the services.

TWO-BOMBER PROGRAM

Senator NUNN. Dr. Hicks, are you a supporter of the "two-bomber program"? How, in general terms, do you see the advanced technology bomber and cruise missile contributing to our security?

As a followup, since the Pentagon has announced that your former employer has a role in the development of the Advanced Technology Bomber, how will you handle your subsequent involvement in program decisions affecting your former employer?

Dr. HICKS. Yes, I am a firm supporter of the two-bomber program and have been since it was proposed in October 1981 as part of President Reagan's Strategic Modernization Program. The strategic bomber force will be increasingly critical to our national security posture and our efforts to create a more stable and secure deterrent.

For the longer term, our studies show the most effective bomber force should contain substantial numbers of both bombers and cruise missiles. Accordingly, we are providing for development of the Advanced Technology Bomber and Advanced Cruise Missile to ensure we will be capable of penetrating all existing and projected Soviet air defense we past the turn of the century.

As for my role, I intend to bring an objective viewpoint to the multitude of program decisions that will arise during my tenure in the DoD. As you are aware, I have, in the process of accepting a Government position, fully divested myself of all financial interests in my previous employer. As a result, I have no conflict of interests and thus can take a completely objective view of all issues relating to the bomber program as well as all other areas of my responsibility.

R&D OUTPUT

Senator NUNN. Dr. Hicks, in real terms the RDT&E budget of the department has more than doubled since 1980; in fact, it has increased by 115 percent. As you think back over the menu of new weapons systems, of prototypes, of equipment upgrades, do you think we are today getting twice as many systems candidates and options from our R&D establishment as we did in 1980? Are we getting our money's worth? Should we be spending only three times as much on procurement of new weapons systems as we are spending on RDT&E, or is that out of line?

Dr. HICKS. A review of the RDT&E program between fiscal year 1980 and fiscal year 1985 (the last approved appropriation) indicates real growth of approximately 80 percent which is significant. Also a review of RDT&E accounts will indicate that the major thrust has been in the Strategic (180 percent) and Intelligence and Communications (187 percent) programs. This is even more pronounced if you consider transfers made from the Strategic accounts to the Strategic Defense Initiative which was established as an Advanced Technology Development in fiscal year 1985. The resources, in our view, were applied in a manner consistent with the threats and needs of the country and we do have a much wider range of systems and system options to solve national security problems. The multiple factor is difficult to quantify but the money has been well spent.

With respect to the procurement to RDT&E ratio, a factor of 3 may appear low compared to non-defense commodities. However, the ratio has risen from about 2.6 in fiscal year 1980 to 3.1 in fiscal 1985. This ratio, as you are aware, is not only a function of the RDT&E amounts but also procurement amounts. We do not believe there will be major upward changes in this ratio because technology in a large measure determines how well our forces can be equipped and supported. There will be a continuing need to create capable, reliable and affordable materiel to counter evolving threats in a wide variety of combat environments. This requires a well conceived, broad-based R&D program designed to overcome and surpass an increasingly capable, from a technological standpoint, adversary. Total procurement to RDT&E, in the current international environment, probably will continue to be a relatively low number.

FUTURE COURSE OF ICBM

Senator NUNN. Dr. Hicks, as you know, the Senate and House have each voted to limit the deployment of MX missiles in Minuteman silos, while keeping the door open to the possibility of a "more survivable basing mode." Have you given any thought to the future course of the land-based ICBM leg of the triad, and, if so, how do you see MX and the Midgetman fulfilling our requirements?

Dr. HICKS. As the President and Secretary Weinberger have stated repeatedly, we believe our security requires that we deploy 100 Peacekeeper missiles. One of my highest priorities will be to identify an acceptable way to complete this deployment.

With regard to the Small ICBM, I think it is very important that we remember that the Scowcroft Commission's recommendation to procede with engineering development of this system was based upon deploying 100 Peacekeeper missiles and making significant arms control progress. Thus, in light of today's environment, the affordability and operational effectiveness of the Small ICBM must be carefully reexamined. A Defense Science Board Task Force is being formed to evaluate the program, and the results of this review will be provided to Congress with the 1987 budget submittal.

Questions Submitted by Senator Carl Levin

SDIO TESTING ACTIVITY

Senator Levin. If you feel that any particular development or testing activity of the SDIO is likely to violate the ABM Treaty, how would you respond?

Dr. Hicks. DOD has exercised considerable care to ensure that the SDI Research Program is being conducted in full compliance with the ABM Treaty. I fully support this policy and, during future reviews, will act to ensure that the program remains in compliance.

SDIO AND ABM TREATY VIOLATIONS

Senator Levin. From what you know of the SDIO's activities, the ABM treaty and the research and development requirements of an effective space based defense system, do you think that it is possible to develop such a system without violating the ABM Treaty?

Dr. Hicks. SDI is not a development program, but a fully-compliant research program. Research on ABM systems and components is permitted. The objective of this research is to provide a basis for an informed decision in the future on whether to proceed with development and to hedge against a very aggressive ABM research and development program being conducted within the Soviet Union. I believe that it is possible to meet this objective within the framework of the ABM Treaty.

With regard to treaty compliance, it should be noted that the Soviet Union has violated the ABM Treaty by building the LPAR at Krasnoyarsk. Certain other Soviet ABM and ABM related activities undertaken by the Soviets may also have violated the ABM Treaty.

SDIO TERMINOLOGY

Senator Levin. Congress and the NSC have mandated that all SDI research be conducted in full compliance with the 1972 Antiballistic Missile (ABM) Treaty, which prohibits the development, testing, and deployment of ABM systems or components that are space-based, sea-based, air-based or mobile land-based. The SDIO has agreed that field tests of space- or other mobile-based devices cannot involve ABM components, prototypes or breadboard models thereof.

In order to exercise effective oversight of SDI's compliance with the ABM Treaty, the SDIO has to have detailed definitions of a number of key terms in the way they are applied to all SDI experiments involving non-fixed, land-based devices.

I would like to know in an unclassified form how the Department of Defense and the SDIO define the following terms as they relate to the 1972 ABM Treaty:

(a) Component
(b) Subcomponent
(c) Prototype
(d) Breadboard model
(e) Field test
(f) Laboratory research
(g) Adjunct

The answers should include:

(1) A detailed definition and explanation of the distinctions between "component" and "subcomponent," "prototype" and "subcomponent," "breadboard model" and "subcomponent", "adjunct" and "Component," and the distinction between "field test" and "laboratory research."

(2) Whether a prototype must perform the complete function of an ABM component.

(3) Whether a device that significantly contributes to the performance of an ABM component as defined in article II of the Treaty is an ABM component.

(4) Whether a device that can perform an ABM mission is an ABM component.

(5) Whether an ABM component, subcomponent, prototype, or adjunct must be verifiable by national technical means.

(6) Why the following experiments in SDI are not field tests of prototypes of non-fixed land based ABM systems or components:

1. Boost Surveillance and Tracking System Experiment
2. Space Surveillance and Tracking System Experiment
3. Airborne Optical Adjunct Experiment
4. Space-Based Kinetic Kill Vehicle Experiment
5. Space-Based Railgun Experiment

(7) Whether any of the experiments in SDI are considered to be "based on other physical principles" under the ABM Treaty. If so, what is the U.S. position as to the coverage of these experiments under the treaty?

Dr. HICKS. 1. "ABM components" are ABM interceptor missiles, ABM launchers, and ABM radars and are described in ariticle II of the treaty. Devices capable of substituting for ABM interceptor missiles, ABM launchers, or ABM radars also are treated as ABM components under the treaty.

Neither "laboratory research" nor "field testing" are terms used in the ABM Treaty.

For a "prototype" to be limited by the ABM Treaty it must be a prototype of an ABM system or component. Regardless of whether a device is labeled "prototype," "breadboard," "test bed," or "preproduction model," or any other term of art, the determination of what treaty restrictions apply is based on whether it constitutes an ABM component under the treaty, or is capable of substituting for an ABM component. Finally, the word "adjunct" is not used in the ABM Treaty. In the ABM Treaty negotiating record, the term "adjunct" is referred to as a device that could be used in conjunction with an ABM component, but that could not perform all the functions of, or substitute for, the component.

Neither the treaty nor the relevant negotiating record refer to the term subcomponent or breadboard mode.

2. For any device, whether labled "prototype" or some other term of art, to be limited by the ABM Treaty, it must constitute an ABM system or component (an ABM interceptor missile, ABM launcher, ABM radar), or a device capable of substituting for such an ABM component.

3. No. Only devices which are capable of substituting for ABM components are covered in this context.

4. Again, the criterion for application of the treaty is whether a device constitutes an ABM component or is capable of substituting for a component.

5. No. The ABM Treaty contains no such requirement.

6. As described more fully in the report to Congress on the Strategic Defense Initiative (1985), there are three basic types of research and development activity that are permitted by the ABM Treaty: (1) conceptual design or laboratory testing; (2) "field testing" of devices that are not ABM components or prototypes of ABM components; and (3) "field testing" of fixed land-based ABM components. The Boost-Surveillance and Tracking System Experiment, Space Surveillance and Tracking System Experiment, Airborne Optical Adjunct Experiment, Space-Based Kinetic Kill Vehicle Experiment, and the Space-Based Railgun Experiment all fall within the second category of ABM Treaty-permitted activity.

7. Some of the experiments in the SDI program will involve devices considered to be "based on other physical principles." Any such experiment will be consistent with the ABM Treaty.

In a more general vein, the Department of Defense has exercised effective oversight of the SDI research program as it is affected by the ABM Treaty and has judged the compatibility of our SDI experiments with that treaty on a case-by-case basis by making use of several reasonable working principles. These principles are discussed in the Report to Congress on the Strategic Defense Initiative (1985).

Chairman GOLDWATER. The committee will stand adjourned.

[Whereupon, at 9:18 a.m., the committee was adjourned.]

[The nomination of Donald Alden Hicks was reported to the Senate by Senator Goldwater on July 25, 1985, with the recommendation that the nomination be confirmed. The nomination was confirmed by the Senate on July 31 1985.]

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